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THE VETERINARY JOURNAL

A Monthly Review of Veterinary Science.

Editor:
FREDERICK HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E.,
HONORARY VETERINARY SURGEON TO HIS MAJESTY THE KING.
MAJOR IN THE ARMY VETERINARY CORPS.
HONORARY MEMBER OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION.
CORRESPONDANT ÉTRANGER DE LA SOCIÉTÉ DE MÉDECINE VÉTÉRINAIRE DU BRABANT (BELGIUM).

Sub-Editor:
GLADSTONE MAYALL, M.R.C.V.S.

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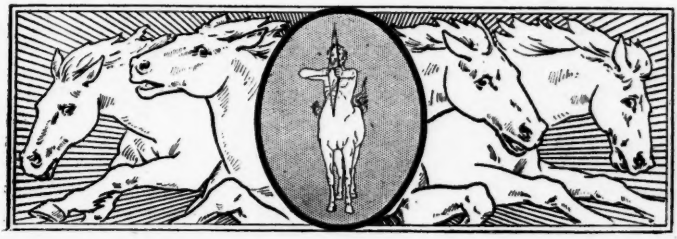

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GLADSTONE MAYALL, M.R.C.V.S.

OCTOBER, 1918.

Editorials.

WHAT'S OVER YONDER ?

THIS query is not asked with the purpose of trying to peep into the Hereafter, or of comforting ourselves with the thought that we shall meet our boon companions, the great figures of history, or our friends Don Quixote, riding on his faithful charger, and Robinson Crusoe and man Friday when we awake in the Shadow Land, but it is written with the idea of arousing within us some thoughts of what we ought to strive for and concentrate our energies on in the future. The dawn of a better day seems breaking at last, and during the glorious and strenuous times that this dawn will herald may we be ready, eager and active to make ourselves better workmen, to lift our profession to a higher plane, to take advantage of all opportunities to serve our country ably and well, and to come out of the work of reconstruction after the War in no whit behind any other progressive profession or body of men. The welfare of the veterinary profession is inseparably wrapped up in the progress and development of agriculture, and no stone should be left unturned to support increased animal breeding and good and plentiful home-life on the soil of the land.

In a recent speech by the President of the Board of Agriculture two sentences occurred : " Where the nation's welfare is at stake, to be a farmer is to be a patriotic Englishman " (" Britisher " would perhaps have been better). " I, for one, shall think with gratitude of the men who, in the face of every difficulty, kept the flag flying on the cornfields

of England." This is all very good, but let us hope its sentiment will be carried forcibly and directly into the House of Commons and that the politicians will not forget it all when the future fiscal policy of the country comes to be decided. The political bells would ring truer to-day and faith in the politicians increase and develop if even now the Board of Agriculture was raised to the status of a first-class Government department. This ought not to be one of the phases in the question. "What's over Yonder?" Recent experience should have already effected the alteration. We as a profession ought to do our utmost to keep the claims of agriculture before our own M.P.'s.

We ought, too, to point out to them and persistently worry them to do something to increase the supply of artificial feeding stuffs. If there is one thing more than another that recent times have shown us it is that the welfare of our animals in winter is almost wholly dependent on an adequate supply of artificial feeding stuffs, and the truth is that the supply is chiefly of foreign origin. There must in the future be some thinking and acting done about this problem. It is a lucrative business, and we ought not to be almost entirely out of it. In the "over yonder" of the future research should play its part in establishing a sound home artificial food product industry. No duty is more urgent or more clearly right and just than that of carrying out the settlement of returned soldiers on the land. Shall we have to wait until the big voice comes that will make itself heard, whether we like it or not, before we deal wisely and fully with this question? Cash must be found to set these men up, and rural life must be made attractive for them. The absorption into agricultural life of rural workers released from munitions will also have to be provided for.

The recovery from shell-shock will probably largely depend on a quiet country life It is not necessary or desirable that such a life should be an unoccupied and unproductive one. For nervous break-down cases—and heaven knows what a number there will be—the carrying out of large schemes of tree growing and planting will furnish ideal means of cure. We think we have now indicated some of the things in the region of "over yonder" which we can help to further and in which we can give understanding aid.

What will concern us directly will be to keep away disease from our own shores, to detect it promptly and to fight against it scientifically when it occurs. There is room in this connection for all our forces to be concentrated on the destruction of animal parasites. We don't want trench-fever to find a permanent home in this country, and we want to keep away all forms of bacillary infection of the intestines. We should be eager to further all scientific enquiries into the origin of disease. Many of our most prevalent animal ailments

are very imperfectly understood, and without right understanding how shall we combat them effectively?

The spread of influenza broadcast must be nipped in the bud. Pleuro-pneumonia, rinderpest, foot and mouth disease, rabies, glanders and lymphangites must be excluded from our country or promptly discovered and dealt with.

The demand for all stock will be great. America has reduced hers, France is breeding less, the British Isles are depleting theirs, Holland and Denmark have sacrificed much of theirs, parts of France and the whole of Belgium have been denuded of stock. The call for horses and animal food will be a very pressing one in the "over yonder." It will be well in the future to remember that "these things rest on the knees of the gods," and that it is our duty to take them off the knees of the gods, and do with them as seemeth best in our own interests and those of our country.

G. M.

THE "NOVICES' SLAUGHTERING BLOCK" AND THE HUMANE SLAUGHTERING OF ANIMALS.

We, as Veterinary Surgeons, are (and should be) the first and the last authorities on the humane treatment of animals. That can be taken as a fact from which we will, as a profession, admit of no digression, nor even allow an argument.

After the war there is no doubt that the "Humane Killer" will be more popular than ever it was before, as every Veterinary Surgeon who has become a Veterinary Officer in the British Army cannot but be familiar with its use on the horse and mule. For the ox it is equally good; but it is objected to still by some butchers on the ground that it destroys life too quickly and completely, preference being given to the poll-axe. The latter is equally humane with the pistol if successfully and effectively used at the first blow, but examination of the hides and skulls of cattle at any large abattoir where this method is in vogue will demonstrate quite a large proportion to have two, three, or even four holes in the portion of skin which covered the brain case.

As stated by Mr. Parker, F.R.C.V.S., in a very able paper (published in the September *Veterinary Journal*) on the necessity for a universal Public Abattoir System, "a good man will despatch his cattle always with the first blow, but no consideration is taken of the animals that have to serve as the novice's practising block."

The "novice's practising block" should not be allowed, as there are plenty of mechanical devices upon which young butchers could practise—machines upon which the strength of the blow would be recorded, and others upon which the direction of a straight blow could

be taken—and it ought to be a law that no one should be allowed to attempt the killing of animals for food until they have passed an examination before a Board of Experts and obtained a certificate of dexterity.

In the eyes of our Continental Allies we in England have an extraordinarily good reputation for kindness and humanity to animals, and there is no question but that we have some right to it, but in many things even yet we have room for improvement; and so long as *post mortem* evidence, in the shape of more than one hole in the hide of the forehead of a bullock, can be found in any of our Abattoirs, so long should we agitate for the compulsory introduction of a method of killing which will ensure instantaneous and absolute loss of consciousness in every class of animal used for food.

Evidence of capability to hit straight and hit hard should be made a *sine quâ non* before ever a youth or a man is allowed to attempt to kill with either hammer or poll-axe, and every Municipal Authority should have an Examining Board composed of a Veterinary Official, one or two expert butchers, and one or more lay officials, who should have power to grant a certificate of competency to the prospective candidate.

A VETERINARY TRIBUNAL.

THE Local Government Board and the Secretary for Scotland have appointed twelve well-known veterinary surgeons as a Special Veterinary Tribunal. Its duties appear to comprise studying ways and means to meet the urgent need for qualified veterinary officers fit for service overseas and to find substitutes for veterinary surgeons overseas who, although over military age, are still doing duty. It is proposed to substitute younger men now exempted for these men. The Tribunal will have power to grant certificates on occupational grounds for professional service in the national interest, under conditions laid down by the Director-General of National Service in conjunction with the Veterinary Tribunal and any Government Department concerned. It is expected that a list of officers available for release from service overseas will be submitted to the Tribunal from time to time. The functions of an Appeal Tribunal will also be vested in the body. In another part of this issue we publish two communications from Mr. H. C. Monro, Secretary, Local Government Board.

PUBLISHER'S NOTICE.

Owing to the enormous increase in the cost of printing and paper, we find it necessary, from now onwards, to raise the price of "The Veterinary Journal" from one shilling to one shilling and sixpence per copy. The annual subscription will now become 18s. instead of 12s., and the annual combined subscription, with "The Veterinary News," will be 30s., post free. No increased charge will be made for subscriptions *already* paid to the end of the present year.

Original Communications.

THE VETERINARY SURGEON AS AN EDUCATIVE FORCE.

By G. MAYALL, M.R.C.V.S.

THE full benefit from instruction can only be derived by the individual when he is in a position and state to see why certain desired things are good and beneficial from a hygienic or health point of view. In the case of animal welfare, the human soil in which the veterinary surgeon has to sow seeds of betterment is often stony or sterile. Real education among the rank and file is still in a poor way. It will never be much better until all work has more soul and less commercialism in it. The majority of elementary school text-books, assuming that readers have little intelligence and do not appreciate literary form, are bound in ugly and inartistic covers. Few small manuals exist that deal with diverse subjects in a really attractive and authoritative way. More of the spirit of "Alice in Wonderland," "Monte Christo," "Robinson Crusoe," and "Gulliver's Travels" needs to be instilled into elementary educational text books to-day. Huxley and Faraday understood the true art of making text-books and lectures attractive, and probably in their day and generation they did more for the advance of education than any men have done before or since. There is hardly any subject that might be made more attractive in the schools than that of hygiene, and if the elements of it were understood by the ordinary stableman and cowkeeper the lot of the veterinary surgeon would be a pleasanter and more satisfactory one. When a veterinary surgeon reaches 50 years of age he is apt to become contemplative. He may call to mind that he has probably (if he has good luck) only about 20 more times to hear the cuckoo and see the trees beginning to bud and he may also wonder whether, despite the boasted educational progress of mankind, we have really travelled very far along the road that leads to the prevention of contagion, infection, and disease. We are constantly going into stables where dirt, cobwebs and ancient grooming utensils abound, and into many cow-sheds where the elementary rules of hygiene are never practised. because absolutely unknown. In recent years there has been a great improvement in many cow-houses, but more hygienic soul still needs putting into the body of the cow owner and cow attendant.

The importance of the veterinary surgeon as an educative force is not limited to routine practice and the treatment of animal disease. He should take a broader outlook and concern himself with animal welfare and production in all its varied phases and conditions. A good knowledge of pathology is very necessary to the veterinarian, but if

there is one thing more than another that its lessons should brand on our memories it is that in very many cases prevention is better than attempted cure. The teachings of pathology, besides painting glad and joyous signs over a number of therapeutic doorways, also point the way to the abandonment of hope from therapeutics for all animals that enter here. If we can check the occurrence of fell diseases by hygienic measures it will pay us a hundred times better and benefit the country and stockowner proportionately, than by bolstering up animals with two feet in the grave. The minor ailments of an animal that will live are worth more to the veterinary surgeon than the serious diseases of a creature beyond cure. The care and increase of the food supply is a field in which we can do good propaganda work. There never will be a time when a correct knowledge of sanitation and disinfection will be more desirable among the laity than in the few years following the declaration of peace. The veterinary surgeon must do his duty as an educative force in this period. The road may be rough and the community tough, but probably some seed will fall on good soil. The attainment of increased practice of the rules of sanitation and hygiene among animals and about their abodes, tracks and surroundings ought not to be beyond the reach of the veterinary surgeon's coo-ee.

THE BRITISH FLOCKMASTER'S AND VETERINARY SURGEON'S OUTLOOK.

A PLEA FOR INCREASED SHEEP BREEDING.

By E. MORGAN, M.R.C.V.S., D.V.H.,
Puerto Cabello, Venezuela.

THE British farmer during the last four years has had no cause to complain, as he used to, that he suffers on account of the keen competition of the foreign market. The cry to-day is "Strain every nerve and muscle in the body so as to make Great Britain as near as possible a self-supporting country." Leaving apart altogether certain products which are tropical and require more sun heat, and other elements that are not in sufficient quantities in Great Britain, is it possible with the population more or less as it is to-day to make Great Britain a self-supporting country? I should decidedly say No. Yet it has been already proved, during the last four years, what great improvements can be made by everybody getting their shoulders to the wheel. For various reasons it is doubtful, after the war is over, whether the home produce will be equal in quantity to what it is at present. The vast areas which have been ploughed during the last four years will not continue for long yielding crops without sufficient manure, although

much of the land ploughed was virgin soil; but virgin soil in Great Britain is not going to last as long without farmyard manure as land in other countries, such as Canada or the tropics. Undoubtedly, thousands of acres in every district have been ploughed which were of more value as pasture than arable land, as many farms are composed of such land, which is of hardly any value whatever for corn production, but was quite useful for grazing purposes as every farmer is compelled to plough more land, and many have no choice of land, so thousands of acres of poor, cold clayland in every parish have been put under the plough. It is doubtful if it will pay the farmer after the war is over to cart his manure to such land; yet he must try and get it to yield pasturage of some kind. It will take the average farmer years and years to get this land to be anywhere near as useful as before. Farmers have to sell hay, straw, etc., in greater quantities than in pre-war days. Where are they going to get the manure to compensate the land for this loss? Artificial manure, as we all know, is of itself not sufficient to replace the farmyard manure. Again, many of the young men at the war will meet new friends from abroad, who will inform them of rich fields and pastures new, where the soil will yield crops in abundance without the labour of carting manure, and undoubtedly many ex-soldiers will emigrate. Also it is doubtful whether the lassies are going to continue doing the work of the laddies in the fields after the war is over. All these things remain to be seen. According to Goldsmith, "There was a time, ere England's grief began, when every rood of ground maintained its man." That particular grief we all know will not come again. The days of the usurper were days of yore.

One thing of importance which should be kept in view is that wherever possible the flocks should not be allowed to decrease in number. As a rule, when agriculture is advancing, the number of sheep is decreasing, for various reasons which I will later on explain. There is going, I think, to be a better market yet for sheep than even to-day. Let us give a few comparisons between the past and present, in order to make it clearer, and also that we should make every possible effort to study the diseases of sheep more thoroughly than has been done in the past. We must admit that there are many diseases of sheep about which we are at a loss regarding the cause. The veterinary profession is almost blameless for not making a special study of the diseases of sheep, as primarily the country in general should give more assistance.

It is less than thirty years since the first Frigorifico or frozen meat works was opened in South America—in the Argentine Republic—and whether or not it was designed by a Britisher, it was, soon

taken over by one. Not so many years ago they could buy any required quantity of sheep delivered at the meat works for very low prices, viz., fat ewes from 3s. 6d. to 5s., and fat wethers from 5s. to 10s. a head, whereas now the prices have increased, so that they cost at least twenty five and thirty shillings a head. Again, the expenses of slaughtering and freezing and the freight over to England is a considerable item to be added to the cost price of the sheep.

Previous to the advent of the frozen meat trade, they used to keep the sheep for the sake of the wool alone ; sometimes they would make use of the tallow; when the ewes grew old, and would not yield a great amount of wool, they used to destroy them in different ways, so as to get rid of them. Almost the same can be said regarding the cattle in the past in South America, because not many years ago they used to kill them in Venezuela and other Republics for the sake of the hides, and allow the birds and wild animals to devour the flesh. If we take the Argentine Republic, for instance, a country which contains the greatest number of sheep in the world, with the exception of Australia, the latter country in the year 1914 had about 85,000,000 sheep and Argentina had about 80,000,000. These statistics from different countries give us approximate numbers, but they cannot possibly be absolutely correct any more than the statistics of sheep in Great Britain. The bigger the area the less correct are the statistics. There are cattle even in South America dying of old age on the plains which have never been caught once for branding. In Argentina there has been a diminution in the number of sheep between the years 1908 and 1914 of 23,986,302, and 3,249,862 in the number of cattle.

Argentina has long been one of the most important sheep-raising countries of the world, as its vast grassy plains and favourable climate made it an almost ideal pasture ground for large flocks. According to a representative at Buenos Aires, they consider that sheep-raising does not pay on land that is suited to agriculture, where transportation facilities permit agricultural products to be shipped to market ; so it has come about that the growth of railroads in Argentina, bringing in their wake farms and plantations, has steadily driven the sheep-raisers farther and farther into the pampas. The province of Buenos Aires is gradually changing from sheep to agriculture : the same thing is true with regard to Entre Rios. The provinces of Mendoza and Cordoba are largely agricultural, although a type of sheep is found in those sections known as "criollo," whose wool is used for carpets. The northern part of the province of Buenos Aires was previously devoted principally to the Rambouillet sheep. This is now one of the principal agricultural zones of the Argentine. Owing to the demand for large animals for meat purposes, and to this section lying nearest of all

to market, Lincolns came to largely replace the Rambouillet. Considerable difficulty is being experienced from liver flukes in this section. The Lincoln sheep have deteriorated in this territory, and the decline in six years is said to be 7,000,000 head. Owing to the danger of inundation there is little or no sheep-raising in the eastern part. In the West agriculture is replacing sheep at a rapid rate. The South is particularly good for sheep-raising, and it is in this section that the sheep industry has declined least. In the North a strip of land thirty miles wide, at the foothills of the Andes, provides the best pasturage for sheep. The best of this land will carry from 2,000 to 2,500 sheep per league of nine square miles.

The lands along the Straits of Magellan have an approximately equal capacity. The record is 5,000 sheep per league, which figure was carried on Chilian territory near Punta Arenas. The land along the coast has a much smaller carrying capacity. Aside from the Andes region the sheep-raising in the interior of the provinces is largely limited to the valleys of the numerous rivers tributary to the Santa Cruz and Chebut, and flowing directly to the Atlantic. A very severe winter is experienced in some of the higher regions every seven or eight years. It is a peculiar coincidence that some of these bad seasons come in pairs—for example 1898-1899, 1904-1905, 1913 and 1914 were all characterised by heavy loss in various parts of the Patagonian region. A bad winter is not general in its effects, but occasions loss only in certain localities. The lamb mortality depends entirely on the care exercised by individual ranch owners. Under ordinary conditions an average of 30 per cent. loss may be estimated in lambs up to one year old. Sheep scab is said to be prevalent in the Argentine in certain districts.

The population of Argentina is increasing, and large towns like Buenos Aires need a large amount of the meat from the country for their inhabitants. The population of Argentine, is estimated to be 8,000,000 and in about twenty years it is expected to be from 20,000,000 to 25,000,000, and as the population increases agriculture will extend, and, as already stated, less sheep will be kept on the land.

In Venezuela there are but few sheep kept, and they who keep these few take but little interest in them ; they do not even take the trouble of shearing them. I asked a farmer recently what was the reason given for not clipping and dipping the sheep in a tropical country, and where ticks are a plague to animals. He said that sometimes they were pulling the wool off the sheep's backs. He asked me if I would care to call one day and teach his son how to shear the sheep. I did call, and the sheep were already in the yard with the growth of several years on their backs. I asked him for a pair of shears, and

he brought me a small pair of scissors about three inches long, and said that he thought them good enough. Such is their knowledge about sheep in Venezuela, a country with an area three times that of Great Britain.

From statistics taken and the comparison between the United States and some of the chief European countries, it shows that the consumption of beef and veal combined was 7,652,000,000 pounds dressed weight in the United States in 1909. In the United Kingdom in 1906 it was 2,644,000,000 pounds; in Germany in 1913 it was 2,555,000,000 pounds; in France in 1904 it was 1,685,000,000 pounds. The consumption of beef and veal in the United States is greater by a large amount than that of the United Kingdom, Germany and France combined.

The comparison with respect to the consumption of *mutton and lamb* is very different. The quantity for the United Kingdom is 1,139,000,000 pounds; for the United States 602,000,000 pounds; for France 353,000,000 pounds; for Germany 128,000,000 pounds. The *United Kingdom consumes more mutton than the United States, Germany and France combined.* The United States consumes somewhat less pork than it does beef and veal, but Germany consumes nearly twice as much. The quantity of pork and pork products consumption for the United States is 7,196,000,000 pounds; for Germany 4,716,000,000 pounds; for the United Kingdom, 1,349,000,000 pounds; and for France, 1,058,000,000 pounds.

By means of estimates of meat consumption, derived mostly by multiplying discoverable estimates of *per capita* consumption by the population for the same year, it is possible to arrive at a general average per head consumption of meat for the following countries:

United States	1909	171 lbs.
France	1904	79 lbs.
Germany	1913	112 lbs.
United Kingdom for years	1891 to 1908	120 lbs.
Previous to	1891	112 lbs.

For a long series of years—certainly as far back as 1904—Germany has been nearly self-sustaining in its meat supply. In 1913 that country was able to produce 93 per cent. of its enormous consumption of beef, mutton and pork and their products, amounting to 7,400,000,000 pounds. The United Kingdom imports a much larger fraction of its meat consumption than any other country does, and since the *per capita* consumption of the British is a liberal one, the total imports of meat and meat products far exceed those of any other country. The home production of beef, mutton and pork has for many years provided a diminishing fraction of the consumption. On the other hand, the

net imports have provided an increasing fraction, and this has grown from 36.5 per cent. in 1890–91 to 46 per cent. in 1907-8.

The net imports of mutton have shown marked tendency to increase as a fraction of the consumption. As far back as 1890-91 they were 25.4 per cent. of the consumption, and with some irregularity, yet with certainty, they increased to 44·1 per cent. in 1907-8.

The number of sheep in Germany shows a rapid decrease between the years 1892 and 1913. I find that in 1892 the number of sheep was 13,600,000, but in 1913 there was a drop to 5,500,000. I have been informed quite recently that the reason given for this increase is something similar to what I have already explained regarding Argentina. They consider that sheep should not be kept on good agricultural land; therefore only those with poor and hilly land retain their flocks. There are also diseases amongst sheep in Germany which account for the death of many of their sheep of all ages. Undoubtedly, Germany and other countries on the continent of Europe will be obliged to import a large quantity of mutton as well as beef and their products for many years to come after the war is over. So it behoves the British farmer, as far as he can possibly avoid it, not to allow his flocks to decrease. We know that there has been a decrease since 1909, but it is trivial when we compare it to that of Germany. Also, Great Britain has been the principal breeding ground of the world for pure-bred sheep. There is a greater danger even at the present time of a further decrease taking place, for obvious reasons, *e.g.*, the high prices, and the fact of the farmer having to cultivate more land and produce more corn, etc. The old-established flocks on the hills will no doubt be retained, where possible, as the owners always endeavour to keep a certain number of breeding ewes so as not to allow the crop of lambs to decrease in number; but, as these flockmasters on the highlands have to winter the yearling lambs in lowland farms, and for reasons already stated it is difficult at this time to find suitable wintering ground for them, and as many of them have to remain on the hills to chance it, there are great risks of having heavy losses. Another reason which accounts for the decrease in the number of sheep, especially in Wales during the last ten years or so, is that it used to be a universal custom among flock-owners on the hills to keep the wethers until they were four years old before selling, but a few years ago the price of these went low down and the price of wether lambs got high, so that many of the flock-owners deemed it wiser to sell the latter than to keep them on until they would be four years old; so, owing to this change the number of sheep got reduced. On the other hand, they are able to keep more ewes on account of this change, but it take several years to make up the deficiency. Besides, selling young sheep from the hills

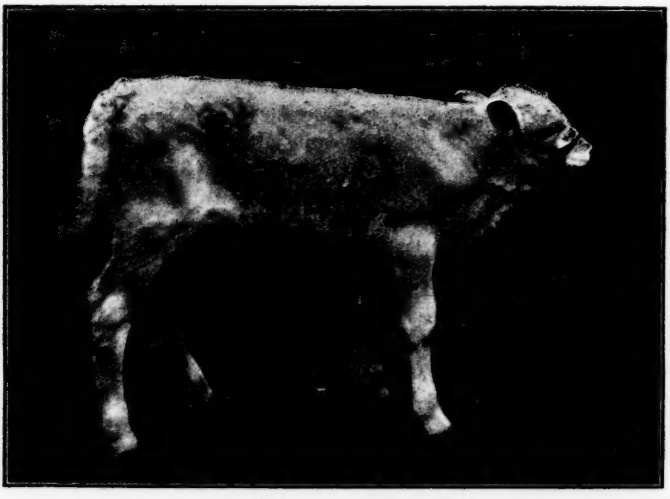
means that the farmers in the lowlands have to fatten them, whereas the old wethers are almost mature for the butcher when leaving the hills, and would have been grazing most of the time, both summer and winter, on the hills. Also the farmers in the lowlands could keep some other stock to consume what these particular lambs nowadays consume.

References:—
1. The National Provicioner.
2. Sheep Raising in Argentina—The Americas, 1918.

ECTOPIA CARDIS.

By W. LOTHIAN, M.R.C.V.S.,
Duns.

I enclose a photograph of a calf with ectopia cardis. I think if anything No. 1 shows it best. When this was taken the calf would be about a month old, and was bred from a cow of the shorthorn type. The heart is situated outside the thorax in the lower third of the neck, the base towards the entrance to the thorax and the apex



pointing upward and forward. The attendant noticed the lump some time after birth and on feeling and pressing it the little animal fainted and fell.

The health of the calf was good, it was lively and took its milk greedily. After any exertion the breathing seemed accelerated beyond what it would have been in an ordinary animal.

Milk being very scarce and seeing it would be easily hurt if sent away to a market it was decided that the most humane thing would be to destroy it. This was done and the *post-mortem* showed the heart to be nearly the same circumference throughout, the apex being bluntly rounded, which made the organ cylindrical instead of conical.

WIND SUCKING IN A COW.

By W. LOTHIAN, M.R.C.V.S.,
Duns.

THE subject of this notice is a four-year old half-bred Ayrshire cow, and was one of two which I selected from a dealer for a client. They were to be kept till calved and purchased subject to passing tuberculin test.

About a week after I met the dealer and he informed me that this cow had calved, but had been noticed a number of times holding her head up, making some noise and sucking wind he thought. Being interested, I called, but did not succeed in seeing her doing anything unusual. Shortly after the other cow calved, and I called again to inject the tuberculin. I had better luck this time. While preparing to take temperature this cow, which was in next stall, put her nose up as high as she could and commenced in real earnest to suck wind. In a very short time the rumen was quite distended. I slipped forward, and putting my hand on under side of neck, felt the wind at very short intervals pass down the œsophagus. She did not smack the lips, but made a sort of quick, "slobbering" noise in which both lips and tongue took part. Shortly after this eructation took place and part of the air was expelled.

The act was oftener seen at night after being watered and fed with cake. She was in nice condition and good health. The owner could prevent her by tying her so that she could not raise the head above what she would hold it when standing at rest. Her history is not known, as she had been bought only a few days before I first saw her.

INTERESTING CASES.

By HENRY B. EVE, M.R.C.V.S., *Folkestone.*

THE EVIL RESULTS OF BLISTERING.

Subject.—Six-year-old bay blood pony, mare, 14 hands, undocked

History.—The test animal had been lame for some 3 months er seen by me, and treated by a V.S. for lameness, which he could no locate, and advised turning out to grass. I had previously insured an passed it sound in 1914. It was sold to another client for £30, as own had been obliged to close his business and join up in Army. The sell

gave a written warranty and guaranteed it to stand "sound" for six months with fair usage. However, it turned lame a month after purchase, and a V.S. was called in who diagnosed rheumatism as the cause, and duly treated without success.

Symptoms.—When called in by buyer on August 27th, 1918, I found the pony grazing in field, dead lame on the near foreleg, in good bodily condition. I had it haltered, and walked on the road, and examined it carefully, and came to the conclusion that the injury was deep seated, and undoubtedly a history to the case, if known—breath fœtid, and mouth, gums, tongue and lips slate-coloured.

Diagnosis.—Severe sprain of the "Levator Humeri," old standing, and probably the muscular spiral nerve, or some other injured, as I observed atroply of the muscles present, which indicated that such was the case.

Prognosis.—Unfavourable; advised a blister or seton, and owner agreed to try a blister, which must be painless, if applied.

Treatment.—September 5th, blistered shoulder with Wyley's (Coventry Green Blister) with the usual precautions, and tied animal after on pillar reins. September 6th, client informed me that the blister had not acted, pony never even felt it, and the part blistered was not *a wee bit swollen.* The following morning at 8.30 a.m. he rang up to say that the pony was very queer, mad with pain, and unapproachable, and had thrown itself down in the stall, and I was requested to visit at once. I went in taxi, and found animal down, unable to rise, and showing symptoms of acute tetanus, and plainly saw that it was dying. Trismus present. Animal died in a quarter of an hour whilst I was there. I gave a hypo-inj. of morphia and atropine, and nicotine suppository.

Result.—Made a P.M. same day, and discovered that "rupture of the heart" was the immediate cause of death—perhaps occurred as a result of falling down during a "tetanic spasm." All other organs healthy, bar heart, which was "hypertrophied." There was an excess of adipose tissue, and what I diagnosed as a condition of "Status Lymphaticus," present.

Remarks.—The animal was of a *very nervous* temperament, and I concluded that the blister irritated the peripheral nerve endings in the skin (reflexly), which produced a kind of "hysteria," and affected the nervous system and set up Idiopathic Tetanus. I found *no* wound or skin abrasion present at P.M., although I looked most carefully. I have seen Tetanus occur frequently after wounds (open knee-joints) when a blister has been applied to the edges of the wound with a view to closing orifice, but I have never seen it after blistering when no wound or abrasion of skin is discernible. I see Prof. Williams says he has known it occur after slightly blistering one foreleg.

I have used Wyley's blister extensively and consider it painless, and far superior to any other on the market. The first case I have encountered since qualifying in 1896. Have any other readers had similar experience with fatal results? My experience is that Idiopathic is more fatal than Traumatic Tetanus.

POST-PARTUM INFECTION IN THE SOW.

Subject.—A valuable pedigree sow, middle white breed, which was in a very fat condition, heavy in pig, and insured by me along with 180 other swine against Swine Fever at Lloyd's; the property of a large breeder in Kent.

History.—On Sunday, Sept. 8th, I was called in to attend her, as she was unable to farrow, had been in labour for some time, and was straining violently without any effect bar pushing her bowels out —so attendant (a soldier) informed me on the phone. (Eversion of rectum.)

On arrival I found trouble, and that he had delivered her of a dead pig, breech presentation, with considerable difficulty. On examination I found another one stuck fast, cross-presentation, which after some considerable patience I eventually rectified and delivered dead, and could feel no more within reach.

Diagnosis .—Presumed that I had a litter of dead pigs to deal with.

Prognosis.—Unfavourable, as the sow seemed completely prostrate, and was a bad subject, being in a plethoric condition.

Treatment.—Gave a diffusible stimulant draught, ether, sulph. meth. ol. terebinth and ol. lini., as animal was very constipated, and a glycerine injection rectally, allowed her an hour's rest, and decided to call again later. Re-examined—no forrader. "Uterine inertia" present; decided to try hypo-inj pituitrin (3cc.) and wait and see. Twenty minutes afterwards its action commenced, and continued for about one and a half hours, and to my delight the sow voluntarily delivered twelve more dead pigs, all fully developed. I inserted hand again to see if womb was at all "tetanised" after the injection of "Pituitrin," as I had never tried drug before on sows, only bitches, and always with good results. No sign whatever of bad results, merely a good evacuation of the bowels, and considerable diuresis, at which I was highly delighted. Syringed uterus out with (P.D. and Co.) mercuric iodide tab. twice daily. (1-1000).

Diet.—Drenched whiskey, eggs and milk, and oatmeal gruel, which was voluntarily taken, animal being very thirsty.

Result—Next day sow showed symptoms of "Puerperal Infection," was completely prostrate, and fœtid diarrhoea continued, streaked with blood. She lay down with her head between her fore

legs, like a bitch, and took no notice of surrounding objects. There were fits of dry, hard coughing, and a muco-purulent discharge from the nose, as if "Septic pneumonia" was developing. She was weak, and staggered when she walked, and only did so when made to. She refused all food, and had to be drenched. The eyes were dull and sunk in sockets and milk all gone, and the animal's whole appearance suggested one of "General Infection" and abdominal pain, indicating "Septic Metro-Peritonitis" present.

Treatment.—Gave hypo-inj. mixed Phylacogen 30cc. (Parke, Davis & Co.) daily, and Quinine salicylate internally as a tonic, and Liq. paraffin.

Remarks.—Recovery in about 10 days, to my surprise. It appears that amongst the sequelæ to parturition when puerperal infection is established, the intestines become the seat of infection, in addition to other organs, notably the lungs. The paraffin I am giving daily in the feed war ration meal, to counteract the indigestion arising and constipation therefrom.

SCURVY (SCORBUTUS) IN YOUNG PIGS.

Subjects.—Small stores which had been recently purchased from a farmer and dealer in rather a large way by a syndicate and insured against swine fever.

History.—They had been fed ere bought mainly on sharps and swill collected from various military camps; since on potatoes and war ration mealies, and stabled in newly erected, up-to-date sites with concrete floors, and runs exposed to the full glare of the sun.

Symptoms.—Pigs appeared unthrify, anæmic, showed a great disinclination to move in any way unless made to do so, hair rough and unkempt and skin in a very irritable condition, judging by the way they rubbed themselves against the trough, posts, etc., which seemed to give them pleasure. Two, however, were evidently very ill, and on being handled I noticed a diffuse swelling, like "Periostitis," present over the metacarpal and metatarsal regions, which was painful on manipulation. The feet also seemed sore, mouth hot, with a sour odour, breath fœtid, temperature high, and constipation, at first followed by sour diarrhœa, and great thirst present when I visited the premises.

Diagnosis.—Query doubtful!

Treatment.—Isolated the two ailing ones; one died next day and the other a few days after, so revisited, and made a *post mortem* on the carcass, which was interesting and instructive.

Post-Mortem Lesions.—Lungs showed a few small petechial patches

under the serous coat; no pneumonic consolidation present. Heart, liver, spleen normal. Stomach and small intestines congested, the latter in a state of "Intussusception," the invaginated portion being situated at the terminal portion of the ileum, where it joins the cæcum. The cæcum being completely reversed, the fold was unable to be pulled out, fixed; the surrounding area intensely inflamed, indicating that the invagination occurred ere death. The solitary follicles of the large intestines were prominent, but there was no ulceration present or swine fever lesions present.

Leg Lesions.—Swellings and contents were easily evacuated by squeezing same and bowel washed clean. Section of periosteum revealed an exudate present on its under surface. The periosteum stripped easily, leaving the bone bare.

Treatment.—Changed the food mealies and potatoes entirely, substituting grass (machine mown available), cabbages, lettuce, and carrot top leaves. Gave internally bismuthated-magnesia, soda bicarb. and potash bicarbonate. Limewater in skimmed milk locally applied to the skin, sulphur praecip. zinc oxide, liq. calcis, train oil to allay itching. Put ashes (fine coal) down in stye, and fixed an awning over the runs to counteract the heat, which was intense at the time, which the pigs fully appreciated.

Result.—No. 2 died a week after No. 1 and was duly reported to the police as a suspected case of swine fever, and a *post mortem* made by a F.R.C.V.S. sent by the Board A. and F., who certified it was not swine fever. The rest have all recovered and are fattening well up-to-date, and no untoward results.

Remarks.—I have named the complaint the above for want of a better, as the appearances presented suggested to my mind the possibility of the case being analogous to disease known as "Scurvy Scorbutus" in the human being, which I have seen, but find no mention of in textbooks available—hence penning these few clinical notes.

SPRING TIME CASES.

By RICHARD JONES, M.R.C.V.S.,
Towyn Merionethshire.

In May, 1915, I was asked to attend a mare with the following history:—"The mare had foaled seven days previously, and since foaling had an abnormal way of urinating. She would lay herself out to pass water, the same being voided with one gush; evidently there was something wrong with her water."

I found the mare and foal in a loose box—a big, lanky, loosely coupled specimen, a type of mare to have large coarse foals, which proved to be the case from future foalings. Nothing could be seen

from a casual examination leading one to think that the bladder had been everted during foaling. The pulse was practically normal, and the temperature, still there was something showing that she was not altogether comfortable.

When I dilated the vulva I immediately saw that the bladder was out and appeared a congested, elongated, round mass. The external parts were washed and I smeared the bladder with carbolised oil and did so frequently during my efforts to return the same. We had some difficulty in keeping the mare quiet, and it took from three-quarters to one hour to return it. At one period of the operation I thought I would have to give it up as hopeless, but I stuck to it and eventually the bladder was returned. I pushed the organ "right home" with a female glass syringe. In three days I was informed that the patient was not so comfortable as she had been, so I went to see her and syringed about three ounces of weak carbolised oil into the bladder. No further treatment was required.

In 1916 the mare did not breed, but I believe she was served in due course after her recovery.

In 1917 she foaled, and during the action the bladder was everted. Nothing was to be seen when the mare was standing, but a portion of the bladder was visible when she was in a lying position. The owner and the hands knew this time what had taken place, so I was sent for as soon as possible. The mare foaled early in the morning and I arrived late in the afternoon of the same day. I did not have the same difficulty in replacing the bladder on this occasion as I had in the first instance.

The owner and myself discussed the wisdom of putting to a horse again and finally decided to give her another trial.

In 1918 the foal proved to be a very large one, a normal breech presentation, and a good deal of traction was applied to effect delivery. The bladder was again everted either before or during the act of foaling. I found on examination that the bladder had come out to the full length of its neck and had tumbled forward into the ballooned vagina and kept in that position whilst the mare was standing, but as soon as I put the mare down the whole of the bladder hung outside the vulva. For some time I tried to replace the bladder with the mare standing, and of course this would have been easier, but she became dangerously restless so I put on hobbles and cast her. I had hard, tedious and tiresome work on the first occasion, but nothing like the trouble I had the third time, to replace the bladder. When I had finished I told the owner "No more," and he agreed.

The interesting feature of this condition is that the same mare for three consecutive foalings should have her bladder everted.

Early in June of this season I had a telephone message to attend a mare which the owner thought was in the same condition as the case which I have just described. This case was about ten miles from the other, but the fact of the first having everted the bladder on three occasions had given rise to a good deal of talk amongst the farmers, and the symptoms exhibited by this case had become well known. The owner of this mare felt quite certain there was something wrong with her bladder before I arrived, which proved the case on examination. This mare's bladder had been out forty-eight hours. I found it half to three-quarters of an hour's hard work. Standing behind the mare I used both hands at the same time to manipulate the bladder into its proper place again, in this case lubricating the organ often during my efforts. No further treatment was required and the owner decided to put her to breed this year again, although knowing the happenings to the first mare described, as he was anxious to have her stock.

During my thirty years' practice these are the only cases of eversion of the bladder that I have had to deal with, and I believe that I have not failed to diagnose any that I might have had to deal with.

I may say for the information of young practitioners that it is tedious and laborious work, and it is exceedingly important to be careful that the fingers do not damage the bladder during the manipulation.

A FEW ERRORS IN DIAGNOSIS AND TREATMENT.

By "CANIS MAJOR."

Most of us at some time or other have been guilty of the above, each instance impressing itself upon our memories in a none too pleasant manner, but serving to fulfil a useful purpose in avoiding future errors of a similar nature. It is with the object of inducing others to relate similar experiences which may serve as a useful guide that I relate the following cases:—

(1) Two-year-old cart colt in very poor condition, the property, fortunately, of a farmer friend who had consulted me as to its lameness of the near hind limb. The colt, not easily approached, was in the field upon my visit, each movement of the animal being accompanied by a distinct clicking sound, whilst at the same time the patella of the affected limb was seen to be slipping on and off its base. Diagnosis—partial luxation of the patella. Imagine my consternation three days later to find that matter had appeared at the coronet. However, all's well that ends well. Under suitable treatment the animal recovered, but for some time I had to endure a good deal of chipping from my farmer friend.

(2) Hunter, lame off hind; considerable swelling of posterior part of fetlock joint, accompanied by acute lameness; pain on manipulation. Synovitis appeared to me at the time to be the cause of lameness, treatment being applied accordingly, and consisting of refrigerant lotions and cold water bandages. I did not myself see the case again, my employer, for whom I had been acting in the capacity of *locum tenens*, upon his return a few days subsequently being urgently called in to attend, when, lo and behold! pus formation was discovered just on the point of breaking out at the coronet. Relief was afforded from below and the case progressed favourably. My employer, a very generous man, was very kindly in his criticism. What the owner's feelings and expressions were I never heard, the latter none too favourable, I fear.

(3) This case, whilst also showing want of care and thoroughness, may not fall quite precisely under the heading, but records one of my many discrepancies. Called to a cow unable to calve, the case being one of breech presentation, after a time presentation was effected, when, after attending to the patient's general comfort, I left, stating that I would call again on the following day, as was my usual custom in such cases. I was informed on arrival that the cow had been in labour for some hours, when on exploration I discovered the presence of a second calf, which I delivered with little trouble. The first two instances impressed upon me ever since the golden rule to examine very carefully the foot, even though the patient was obviously lame in the shoulder or hips, and never since my third case have I failed to examine and explore the uterus carefully after remedying dystokia.

(4) Cow very lame, accompanied by great swelling over the region of the shoulder, the lameness having been of some duration. The presence of a large quantity of pus could be easily detected. Being young, keen on surgery and the knife, my first thought was to evacuate the contents of this swelling. A good opening was made in its walls and a tremendous quantity of pus evacuated. Upon digital exploration of the cavity, much to my horror I discovered sharp edges of broken bone. Result was that I had converted a simple fracture into a compound one. The butcher in this case completed further treatment.

(5) Shorthorn cow, appetite entirely in abeyance, milk suppressed, temperature subnormal, presenting a going-home appearance, was by my advice and faulty prognosis sold to and destroyed by a third-rate butcher. The carcase when dressed showed nothing abnormal, and was to all appearances fit for human consumption. The owner, fortunately for me, never heard the true facts of the case. The butcher however, had, as he explained to me afterwards, a highly satisfactory

deal, and much to my disgust ardently desired to make me a present on the strength of the deal.

(6) This was a gross care of carelessness, and concerned with the treatment of a case of parturient apoplexy, at a time preceding the introduction of the air or oxygen treatment, but early in the period of Schmidt's method when iodide of potassium in solution was employed. Starting off in a hurry to this case, some miles away, I neglected to prepare a sterile solution of this drug, taking only with me the syringe, and the necessary quantity of pot. iodid. inthe solid, intending to make the solution on arrival. Dirty utensils and imperfectly sterilized water completed the damage. Bad results followed within twenty-four hours, death occurring from septic intoxication. Here I had to congratulate myself that the cause remained undiscovered except to my guilty self, death being attributed by the owner to milk-fever.

The foregoing cases are only just a few instances of my many errors, and I trust will not receive too keen criticism, and more particularly do I trust that this issue of the VETERINARY JOURNAL does not meet the eye of the layman or farmer. My only defence is my youth and inexperience at the time, and at a time when I myself should have considered such lack of judgment unforgiveable in others, now after an experience of nearly twenty years can view with equanimity and justice corresponding faults of my younger professional brethren.

PURPURA HÆMORRHAGICA.

By W. H. BROOKE, M.R.C.V.S.,
Handsworth.

THE subject was an aged black mare of the heavy vanner type, which on June 1st last was found to have naso-pharyngeal catarrh of an acute nature. Pulse 55, respiration 14, temperature 104° F. Appetite poor and throat acutely sore. The animal had been kept at work for three or four days in this condition, and a week previously had been turned out on a poor pasture after having been much overdone at work. When brought up she was put in a reduced condition to long boating journeys and so was much devitalised when submitted for treatment. Improvement was shown in response to treatment for a week. Appetite returned and acute symptoms abated, but at this period I received an early morning telephonic call from the horse-keeper, who told me that the mare had developed tumour of the near hind leg. Before I saw the mare I suspected what was the matter, and on arriving at the stables I found the near hind leg swollen from pastern to the middle femoral region, where it had the characteristic abrupt shelving termination. A bloody ooze was present at the anterior aspect of the near hock and from both hind heels.

Breathing accompanied by a snuffling sound and a blood-tinged discharge issued from both nostrils, the lining membrane of which showed patchy capillary hæmorrhages. There was some swelling of the nasal alæ, which in a few days extended upwards for about eight inches. Other swellings had also developed in the off hind and near fore limbs, and by now though the enlargement of the near hind leg was reduced, a most offensive odour was noticeable, which I at first thought emanated from the lungs, as it was very similar to that given off in gangrenous pneumonia; but on closer examination it was found to issue from the hind leg, the skin of which was separated in extensive areas over the flexor aspect of the fetlocks and parts immediately above and anterior parts of the off hock, and discharging a bloody, offensive pus. And now the skin covering the fetlock, heels and flexor aspect of hind leg, fronts of both hocks, near shoulder and outer femoral region of the near hind leg, began to harden, and at points of junction with the normal skin it became divided through movement from which the discharge issued. Later, the affected tracts of skin became drier and mummified, some of which was removed and in other places commenced to slough. With the skin-separation, which involved all the originally swollen parts except the head, the general health improved The lungs, which soon after the advent of purpuric symptoms had become seriously involved, now settled, the pulse reduced to 46 and temperature 101°F; respirations nearly normal. The bowels, which had been discharging soft dark-coloured fæces, became natural. The animal had generally improved, moved without difficulty and fed well; but after removing large pieces of mummified skin, other large tracts began to slough and hung in ribbon-like pieces. So extensive was this that treatment had to be abandoned and animal destroyed. Post mortem showed the lungs to have almost completely recovered, only small areas in the anterior lobes being affected. Other parts were all but normal. The treatment when purpura became evident consisted in a couple of early doses of anti-streptococci serum, and later one or two doses of adrenalin in addition to medicinal agents which on, account of throat and lung conditions, were administered in electuary form and included potas. chlor; soda salicyl; ext. nux. vom., ext. digitalis and potas. iod.

The chief interest of the case, however, centres in the pathological condition of the skin. What could have determined the extensive sloughing, and why, considering its extent, was the animal not only free from general sepsis, but showed apart from the skin so manifest an improvement?

I think we may reasonably conclude that the injection of protective serum gave freedom from pyæmia. Is it likely that any agent

used in treatment affected the course of the skin lesions? Would the adrenalin injections be likely to exert an influence in this direction in spite of its general good effects? In controlling capillary leakage in parts not so gravely affected, is it possible that it shut off nutrition from parts deeply involved?

I think that the value of adrenalin in its general good effects is unquestionable in this disease; but it no doubt calls for discrimination in its use. Adrenalin is said to produce its effect by direct action on the muscular tissue itself, voluntary and involuntary, and not to act through the vaso-motor centre, but necessarily through the medium of the terminal sympathetics. It has a diabetic influence.

What would be the effect of adrenalin upon the vessels of parts affected by purpuric extravasation? Many of the smaller vessels of such parts would be occluded altogether, and not permeable to its action, while in other cases the vascular porosity would probably allow of the astringent action of the drug in serivascular areas, propulsion being aided also by the more powerful cardiac systole, thus causing further occlusion. The lymphatics would be similarly affected. Such conditions would be likely to tell seriously and immediately upon parts so damaged.

I think the reasonable conclusion would be that although admissible in moderate purpuric extravasation, when this is so acute as to cause bloody ooze, it should be withheld.

CASE OF DIGITALIS POISONING.

By J. W. POLLOCK, M.R.C.V.S., *Lockerbie.*

THE animal was a Clydesdale filly, 3 years of age. She had been ill a day or two before I saw her. The symptoms were those of approaching coma: when walking she staggered on the hind legs and extended the fore legs in an uncertain manner; she was apparently quite blind; there was some salivation, but not profuse, and the buccal mucosa was slightly inflamed. The pulse could not be felt, and on auscultation the heart-beats were very slow and scarcely audible. The temperature was about normal (internal and external) but the respirations were quickened and weak (shallow). The fæces were scanty, hard, and partly covered with mucus. All food was refused. The filly died in coma twelve hours after these symptoms were observed. After death decomposition was not rapid. The filly had been at grass and was getting no other food. In the field there was a deep gully with a stream, and on the one side of this gully there was a considerable area occupied by *Digitalis Purpurea* alone. The plants had been freely eaten, and the chewed stalks were found lying about. No *post-mortem* examination was made.

NOTES ON MASTITIS IN CATTLE.

By J. W. POLLOCK, M.R.C.V.S.,
Lockerbie.

THIS is a disease of the summer more than the winter. It varies very much in its effects (both systemic and local) on the affected animals. In my experience it is very common during the months of July and August, and rare during the remainder of the year, and during these months heifers which have not calved are as liable to get the disease as are dairy cows, although the heifers are usually approaching the end of the pregnant period. In some cases the fluid, which can be "drawn" from the diseased quarters of the udder, is very septic, and the systemic disturbance is consequently serious, death not infrequently being the result; and in a few cases gangrene of one or more teats and part of the udder occurs with an accompanying septicæmia. The formation of abscesses in these summer cases is rare. Even in the milder cases the milk secretion is never restored in the diseased quarters of the udder for the same season. In those cases in which the whole of the secreting cells of the quarter have not been destroyed by the disease, the milk secretion is restored at the next "calving," but in many cases the quarter remains "blind" and of a hard, fibrous nature. On the other hand, in those infrequent cases occurring in the other months of the year, the restoration of the milk-secretion to the diseased quarter is the rule, even in the same season, although in diminished quantity; these cases are not usually septic. It will be observed that the summer cases appear with the advent of the fly-season and disappear with the departure of the flies —at least when flies are most numerous. Cows with abrasions and "cracks" of the teats are more liable to the disease than cows with "clean" teats, and I have often noticed a cluster of flies on the "point of the teat of a diseased quarter. Is it not likely that flies are the carriers of the bacteria, which cause the summer varieties of the disease? Cows with small teats are more liable to the disease than those with large teats. These small teats are apt to become well moistened with milk during the milking process, if done by hand, and the milk will attract the flies. With regard to heifers and cows approaching the "calving," the small grain of "wax" at the "point" of the teat may be food for them.

The losses to dairy farmers from this disease every summer are considerable, and the disease should be further investigated. Antiseptic injections have not proved to be very satisfactory.

Abstracts.

BLOOD-SUCKING INSECTS AS TRANSMITTERS OF ANTHRAX OR CHARBON.

Anthrax or Charbon is one of the common live stock diseases in certain sections of Louisiana. Sporadic cases of the disease occur during the greater part of the year, but enzootics always appear during the warm summer months. Several theories have been given concerning these outbreaks—namely, previous infection, favourable climatic conditions, neglect in the proper sanitary care of anthrax carcasses, blood-sucking insects, and many others.

In work carried on in the Louisiana Experiment Station for the past three years an attempt has been made to find out the relation between blood-sucking insects and the transmission of anthrax. In the past a few articles have been published concerning the transmission of anthrax by biting flies.

In the review of literature on anthrax very few data have been given concerning the transmission of this disease by the biting of blood-sucking insects. Schuberg and Kuhn,* in 1912, transferred anthrax infection from a cadaver to a living animal through the biting of *Stomoxys calcitrans*.

The most extensive research work along this line has been carried on by Mitzmain,† who succeeded in transmitting anthrax through the bites of *Stomoxys calcitrans* and *Tabanus striatus*.

In Louisiana, Dalrymple and Dodson,‡ as early as 1900, gave a record showing the relation of the density of the blood-sucking insects to the outbreak of anthrax. But while they were more or less positive in their opinions, based upon what seemed strong circumstantial evidence, they did not submit any direct proof at the time of transmission of infection by the flies.

After observing several enzootics of anthrax in Louisiana it appeared that some unknown factor was playing a prominent part in the continuance and spread of this disease. For that reason a study of some of the most common blood-sucking insects was undertaken in the pathology laboratory of the Louisiana Experiment Station.

The following article is a report of the work to date. Many phases of this subject have not been touched in this report. It is hoped that the results given will assist in the sanitary control of anthrax in Louisiana.

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* Schuberg and Kuhn. Ueber die Uebertagung von Krankheiten durch einheimesche stechende Insekten. Arb. a. d. kais. Gesundheitsamte (1912), Heft 2, Bd. XL, 209-234.

† Mitzmain, 11, Summary of Experiments in the transmission of anthrax by Biting Flies, U. S. Public Health Service, Hygienic Laboratory Bulletin No. 94 (1914).

‡ Dalrymple, Louisiana Bul. No. 60 (1900).

The purpose of the experiments was to test the possibility of anthrax transmission through the biting of blood-sucking insects. As enzootics of anthrax occur during the prevalence of these insects, it was considered possible that the anthrax bacilli might be carried on the proboscis of an insect to healthy animals after having fed upon an animal sick with anthrax. All experiments were conducted with experimental animals under as nearly natural conditions as possible. Pure cultures of anthrax spores were used in producing the disease.

The flies used in these experiments were *the horn fly, Hæmatobia irritans L.,** and a horse fly, *Tabanus sp.* This horse fly was sent to the U.S. Bureau of Entomology to be identified. Mr. Frederick Knab reported that the species was *Tabanus sp.* near *nigrovittatus* Macq., apparently undescribed.

The mosquitoes used were *Psorophora* (*janthinosoma*) *sayi* D. & K. and *Aedes sylvestris* Theob. These determinations were also made by Mr. Knab.

TECHNIQUE.

Guinea pigs were inoculated with a loop of anthrax spores injected subcutaneously or into the abdominal cavity. These inoculated guinea pigs were used as sources of infection except in one experiment where a sheep was used. The same strain of anthrax was used in nearly all the experiments and proved to be very virulent. Death would occur in adult guinea pigs twenty-eight hours after inoculation, or sooner in younger animals.

The Horn fly is one of the most predominant of all the species of blood-sucking flies. It is prevalent during the greater part of the year, and is found, during the summer months, in swarms feeding upon cattle, more especially upon animals with dark coats, to evade detection.

The flies were collected in a net from the black cattle on the Experiment Station farm. Very little difficulty was experienced in collecting the Horn flies in this manner, and very few other species of flies were found among the large number collected But, as with other workers, great difficulty was experienced in keeping the flies alive in captivity, due to the fact that if left unfed for twelve hours they would practically all die. Frequent feeding upon a living animal was found necessary if they were to be kept alive for any length of time.

The Horn flies were confined in a cage, which was a wooden box with curved open top covered with fine wire screen. The number of flies used in a cage would vary from one hundred to three hundred.

The guinea pig which had been previously inoculated with anthrax

* This fly is so called because it has the habit of clustering in great numbers at the base of the horns of cattle. As a cattle pest it has few equals. It is about half the size of the common house fly, and is very prevalent in the San Joaquin Valley, California.—G. M.

was tied on the cage and allowed to remain for one minute. Then, after removing the animal, the screen was disinfected with a 1-1000 bichloride of mercury solution to eliminate the danger of infecting the healthy guinea pigs through skin lesions. The healthy guinea pig was then fastened on the cage and allowed to remain from one to three minutes. The horn fly will usually feed from three to six minutes. By this method the feeding was interrupted, being started on one animal and continued or completed on another.

The length of time which elapsed between the time of feeding on the infected animal and its death was noted in every case in order to determine at what period in the development of the disease virulent organisms could be transferred by the flies. The animals used were in different stages of the disease, ranging from six hours before death to thirty minutes after death.

In some experiments the hair was removed from the abdominal surface of the guinea pigs, but this was not necessary because it did not seem to affect the percentage of infections produced

The results of these experiments are given in Table I :

TABLE I.

ANTHRAX TRANSMISSION BY THE HORN FLY.

Length of Time from Death of Infected Animal.	Number of Guinea Pigs Bitten by Flies.	Number Dying with Anthrax.	Percentage of Infection.
Six hours before death	10	0	00
Five hours before death	18	0	00
Four hours before death	17	2	11
Three hours before death	15	3	20
Two hours and thirty minutes before death	15	4	26
Two hours before death	14	3	21
One hour and thirty minutes before death	16	5	31
One hour before death	20	8	40
Thirty minutes before death	22	12	54
Fifteen minutes before death	20	10	50
Five minutes before death	20	11	55
At death	15	5	33
Fifteen minutes after death	10	1	10
Thirty minutes after death	12	0	00

After death all guinea pigs were posted and bacteriological examinations made of the blood taken from the spleen. All doubtful cases were cultured and animal inoculations made to prove results

The above table shows that the flies feeding upon an infected guinea pig four hours before its death transmitted the disease to healthy pigs. In only one instance was the same result obtained by the flies feeding upon an infected carcass. The results indicated that the greatest number of transmissions took place a short time before the death of the infected host. This was due to the fact that anthrax bacilli became generalised in the circulation of the animal a short time before death. The horn fly would not feed upon the infected carcass of a guinea pig satisfactorily.

In some cases the internal form of anthrax was produced, but in the majority the external or carbuncular form was most common. The guinea pig died anywhere from forty-eight to seventy-two hours after being bitten by the flies.

The transmission of the disease seemed to be mechanical, the anthrax bacillus being carried from the infected host to the susceptible animal on the soiled proboscis of the fly.

A few experiments were conducted in which a period of time elapsed between the feeding on the infected host and the susceptible animal. The results were negative.

In another experiment an infected sheep was used as the source of infection. The same technique was used as in the preceding experiment. Each cage contained about one hundred and fifty horn flies. The flies were allowed to feed for one-half minute upon the abdominal surface of the sheep, after which the screen was disinfected with a 1-1000 solution of bichloride of mercury. Immediately the flies were permitted to feed upon the body of a healthy guinea pig. The results are given in Table II below :

TABLE II.

ANTHRAX TRANSMISSION BY HORN FLY FROM SHEEP TO GUINEA PIG.

Length of Time from Death of Infected Animal.	Number of Guinea Pigs Bitten by Flies.	Number Dying with Anthrax.	Percentage of Infected.
Thirty minutes before death	2	1	50
Fifteen minutes before death	2	2	100
At death	3	3	100
Fifteen minutes after death	2	2	100

The table shows that eight out of nine pigs died of anthrax. No doubt the high percentage of infection was due to the large number of anthrax bacilli being present in the peripheral blood of the sheep.

EXPERIMENT WITH HORSEFLY.

The horsefly, *Tabanus sp.*, was collected, during the middle of the day, from horses and cows in the fields just north of Baton Rouge. The fly appeared in great numbers during the latter part of August and through the month of September, 1915. This species was used because the flies were collected with little difficulty, and while in captivity bit like fiends when placed on any living animal. The host gave evidence of great pain when the fly was feeding, and quite often a drop of blood would escape after the fly had finished feeding.

TABLE III.

ANTHRAX TRANSMISSION BY THE HORSEFLY.

Length of Time from Death of Infected Animal.	Number of Guinea Pigs Bitten by Flies.	Number Dying with Anthrax.	Percentage of Infection.
Four hours before death	6	1	16
Three hours before death	6	1	16
Two hours before death	5	1	20
One hour and thirty minutes before death	6	2	33
One hour before death	8	3	37
Fifty minutes before death	5	3	60
Forty minutes before death	6	3	50
Thirty minutes before death	5	3	60
Twenty minutes before death	5	4	80
Ten minutes before death	6	5	83
At death	6	6	100
Five minutes after death	6	1	16
Twenty minutes after death	8	0	00

METHOD.—Small glass jars, with wire gauze covering, were used as retainers for the flies. One fly was placed in each jar. Several guinea pigs, including the infected one, were secured on small tables with the abdominal surface up. The screen covering the jar was placed against the abdominal surface of an infected pig in the last stages of the disease. Just as soon as the fly commenced feeding the jar was removed and placed upon a healthy guinea pig, where the feeding was completed.

If the screen covering of the jar came in contact with blood from the infected animal the metal cap was removed and replaced with a clean one before feeding upon the healthy animal. This was done to avoid inoculation through skin lesions. The above table No. III. gives the results of these experiments.

The above table shows a rather high percentage of infections produced by the method of interrupted feeding. The carbuncular form of anthrax was produced in the majority of cases. The flies would not feed satisfactorily on the carcass of a guinea pig.

Under field conditions another species, a black horsefly, *Tabanus atratus* Fab., sometimes feeds upon carcasses thirty minutes or more after death. Virulent cultures of anthrax have been obtained from the bodies of these flies which had been feeding upon the carcass of ad animal that had died of anthrax. These flies could not be inducen to feed in captivity, although a great number were collected and different technique used.

It is quite common during the fly season to see blood dropping from the bellies of horses and mules, due to the biting of different flies of the genus Tabanus. In this manner anthrax could be spread from animals suffering with the disease.

Experiments with Mosquitoes.

The mosquitoes used in this work were collected near Baton Rouge. *Psorophora* (*janthinosoma*) *sayi* D. & K. were found in great numbers in the low-wooded lands along the Mississippi River. They did not like to come into the hot sunshine, but were easily captured on the body of a horse driven into the woods. The animal showed evidence of great pain by their bites. Individuals of this species were easily recognised on account of the bobbing of their third pair of legs through the air while feeding.

The other species of mosquito, *Aedes sylvestris*, Theob, was very common in Baton Rouge during the summer of 1915, and could be collected while feeding upon man or animal. They bit voraciously, and were very annoying to live stock, even the thick skin of a cow could be punctured with apparent ease.

Method.—The same technique was used as with the horsefly. The mosquitoes were retained in the same jars (Fig. 2) and allowed to feed through a fine copper gauze. The interrupted method of feeding was used and from one to five mosquitoes were allowed to feed upon each pig. No difference could be noticed in the number of transmissions by the different species. All results are combined in Table No. IV, below:

TABLE IV.

ANTHRAX TRANSMISSION BY THE MOSQUITO.

Length of Time from Death of Infected Animal.	Number of Guinea Pigs Bitten by Flies.	Number Dying with Anthrax.	Percentage of Infection.
Four hours before death	3	0	00
Three hours thirty minutes before death	3	0	00
Three hours before death	6	1	16
Two hours thirty minutes before death	7	2	28
Two hours before death	7	2	28
One hour thirty minutes before death	8	2	25
One hour before death	10	3	30
Forty minutes before death	5	3	60
Thirty minutes before death	10	5	50
Twenty minutes before death	6	3	50
Ten minutes before death	9	6	66
At death	10	7	70
Ten minutes after death	8	1	12
Thirty minutes after death	6	0	00

The above table shows that the anthrax was transmitted through the biting of mosquitoes for a period of three hours before until ten minutes after the death of the infected host. As with the flies, the greatest number of infections were produced just before or at the time of death of the infected guinea pig. The mosquitoes would feed upon the carcass of a guinea pig for only a few minutes after death. Both the internal and carbuncular forms of anthrax were produced.

EXAMINATION OF INSECT EXCREMENT FOR ANTHRAX BACILLI.

The subject of fecal contamination was also studied in conjunction with the transmission experiments described in this work.

The same bottles were used for retainers for the insects as in the previous experiment (Plate 2). It was necessary to determine the presence of anthrax bacilli in the blood of the infected host before permitting the experimental insect to feed. The following method was adopted:

METHOD.—A mosquito or fly was allowed to feed upon the infected host until engorged with blood, then killed and the blood pressed from the body upon a clean slide. The blood smear was stained in the

usual manner and examined under the microscope. If anthrax bacilli were present in large numbers other experimental insects were allowed to feed upon the same area on the infected host. Feeding was a very simple operation while working with the horsefly and mosquitoes, as

TABLE V.

EXAMINATION OF EXCREMENT FOR ANTHRAX BACILLI.

Name of Insect.	Time Following Feeding on Infected Host — Hours.	Number Specks Cultured.	Number with Anthrax.
Haematobia irritans	0–3	426	6
,, ,, ...	3–6	344	5
,, ,, ...	6–9	230	0
,, ,, ...	9–12	148	0
,, ,, ...	12–15	35	0
,, ,, ...	15–18	25	0
,, ,, ...	18–24	10	0
Tabanus	1–12	54	2
,, ...	12–24	49	0
,, ...	24–48	48	0
,, ...	48–72	40	0
,, ...	72–96	36	0
,, ...	96–120	30	0
,, ...	120–144	24	0
,, ...	144–168	19	0
,, ...	168–192	10	0
,, ...	192–216	8	0
Mosquito	0–24	250	0
,, ...	24–48	211	0
,, ...	48–72	124	1
,, ...	72–96	54	0
,, ...	96–120	36	0
,, ...	120–144	20	0
,, ...	144–192	8	0
,, ...	192–240	8	0

they would feed about every second day. But it was almost impossible to induce single horn flies to feed while confined in a bottle. This presented a serious problem, because this fly would not live for any length of time unless fed upon the blood of a living animal. To over-

come this difficulty in feeding it was found necessary to place a dozen flies in a bottle, and then all would feed immediately when the screened top was placed in contact with a living animal. After feeding upon an infected guinea pig, the flies were anesthetised and each put into a sterile bottle and permitted to deposit upon the glass of the bottle.

The fresh fecal deposits were cultured each day by removing the "specks" from the surface of the glass by means of a heavy platinum needle, and cultures made in agar dilution plates. After incubation for twenty-four hours at 37·5° C. the cultures were examined, and all colonies resembling anthrax were recultured and inoculations made into guinea pigs. Results obtained are given in Table No. V, above.

The above table shows that one thousand two hundred and eighteen "specks" from the horn fly were cultured and eleven produced colonies of anthrax. These colonies were found within six hours after feeding upon an infected host. Two colonies of anthrax were found in three hundred and eighteen "specks" from the horsefly. One colony of anthrax was found in seven hundred and eleven "specks" examined from the mosquito.

The above results would indicate that anthrax bacilli are mostly if not entirely destroyed in the digestive tracts of the above described insects when ingested from the blood of an animal sick with anthrax. The few colonies found might have been produced from contaminated feet and bodies of the insects.

No attempts were made to feed anthrax spores to see if they would pass through the digestive tract. In this work no micro-organism was considered anthrax unless it proved virulent for a guinea pig. This precaution was taken on account of the prevalence of pseudo-anthrax in this locality, an organism which is found in laboratory cultures and mistaken for anthrax.

Summary and Conclusion.

Briefly the results of the experiments described above may be summed up as follows:

1. Horn fly, *Haematobia irritans*, and the horse fly, *Tabanus sp.*, are capable of transmitting anthrax by feeding upon a healthy animal after biting an infected one.

2. Mosquitoes, *Psorophora* (*janthinosoma*) *sayi* D. & K. and *Aedes sylvestris* Theob. can transmit anthrax in the same manner as flies.

3. The results would indicate that anthrax is not usually spread in the excreta of above insects after feeding upon the blood of an animal sick with anthrax.

In this report on the subject of anthrax transmission by blood-sucking insects common to Louisiana we have given a summary of the work and results obtained. A great many points of scientific import-

ance have not been touched in this work. A large number of insect pests should be investigated to determine the part played by them in the continuance and spread of anthrax in Louisiana.

The results of this work should prove the necessity of protecting animals sick with anthrax against the biting of blood-sucking insects, if the disease is to be controlled. They also show the necessity of keeping valuable animals in screened buildings during the outbreaks of this disease.—*Louisiana Bulletin, No.* 163.

DOCKING AND CASTRATION OF THE YOUNG LAMB.

By J. N. FROST and E. B. HOPPER,
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The operation of docking and castrating the young lamb is simple, but unless done with some care may result in loss from hemorrhage or infection. The young lamb is docked and castrated at the age of one or two weeks, both operations being performed at the same time, unless in the case of a very weak lamb, which might be allowed to develop a little longer, or the operations done singly.

In castrating the lamb an assistant holds the animal with a fore and hind leg in each hand with the back against his body. This exposes the field of operation and confines the animal without the danger of injury.

The only instrument necessary is a large pair of shears, and this with a pail of antiseptic solution and a can of disinfecting powder is all that is required. A five per cent. solution of any of the coal tar disinfectants may be used as an antiseptic and equal parts of boric acid, charcoal and lime for a dusting powder.

The shears should be washed in the antiseptic solution before each operation. The operator grasps the scrotum in the left hand and with the shears cuts away at least half of the sac. This produces a sufficiently large opening, so that any pus or blood clot which may form has good drainage. Each testicle is then drawn out separately and the cord severed with shears. The practice of pulling on the testicle and rupturing the cord is not a good one, as this is liable to tear the blood vessels where they branch from the main artery and vein and result in fatal hemorrhage or a large blood clot, which later becomes infected and causes the death of the lamb from sepsis. After removing the testicle the wound is covered with dusting powder which promotes healing and keeps the flies away.

In docking the animal a knife or the horse emasculator may be used. By using the emasculator practically all hemorrhage is done away with, and it also leaves a portion of skin to cover the end of the

bone. The lamb is held in the same position as for castration, and after dipping the instrument in the antiseptic solution the tail is removed, leaving a dock one or two inches long. The dusting powder may then be used as in castration.

Following these operations the lambs should be watched carefully and any that show swelling or stiffness should be caught and examined, especially when the animal has been operated upon in fly season, as the wounds are liable to become fly-blown and maggots develop.—*Cornell Veterinarian*

GAS MASKS FOR HORSES.

Poisonous gas, one of the horrors of the war, introduced by the Central Powers, has taken its toll from horses as well as men. A factory in this country is now finishing 5,000 masks a day especially designed for the American horses and mules on the battle front, and it is expected that soon all the transport and artillery animals will be equipped with this life-saving device. Although much of the hauling of supplies and ordnance is effected by motors, it has been found that the horse cannot be dispensed with, and that the motors do not supplant but supplement his work. The dogs used in the service of the Belgian Army are also supplied with masks. It is a matter of profound satisfaction that these useful friends of man can be protected from one of the atrocities of the war.—*Journal of the American Veterinary Medical Association.*

SYMPTOMS AND CONTROL OF STOMACH-WORM DISEASE.

By W. D. WAY,

Department of Medicine, New York State Veterinary College at Cornell University, Ithaca, N.Y.

During the late winter and spring just passed, stomach-worm disease has been the cause of considerable loss among sheep owners. In many instances the owner is not aware of any trouble with his sheep until he finds one dead in the fold. This will perhaps be followed by another, and so on, until he really becomes alarmed and begins to watch the flock more closely. Then he notices that some of the sheep seem to lack spirit and vigour. They have a dull, unthrifty appearance and the wool is shredded and pulls out very easily. If he examines the sheep closely, he will find that nothing but skin and bone remain, the emaciation having gone unnoticed because of the

wool. The eye is dull, the mucosa of the conjunctiva and mouth are pale, and in some instances white. The animal grows progressively weaker until it can no longer keep its place in the flock, is easily butted about and pushed over by the other animals, and perhaps rises again with difficulty. Concomitant with these symptoms, diarrhœa will be noticed, the fæces being soft, mushy and greenish in color. Finally the sheep dies, and on autopsy the carcass is found extremely emaciated and hide-bound. The subcutaneous tissues are anæmic, the blood is deficient in quantity and in consistency, the parenchymatous organs show degeneration and a paleness from lack of blood supply, the stomach shows redness and the parasite *Hæmonchus contortus* may be found in the abomasum as small white or reddish, hair-like worms 1 to 2 centimetres long. If autopsy is made immediately, a great many of these worms may be found free in the stomach contents and some strongly adherent to the stomach wall. The latter will usually be reddish in colour, due to the ingested blood. However, if the autopsy is delayed, very few or no worms at all may be found it as they disappear from the carcass soon after death.

The diagnosis is best made by killing and making an immediate autopsy on a suspected animal. The fæces of the living animal may be examined microscopically for the presence of ova. These are slightly larger than the esophagastoma, ovoid, and usually show some phase of the process of segmentation.

In order to control an outbreak it is necessary to know something of the nature of the spread of this disease. It has been more prevalent during the past two or three years probably because the seasons have been wet, which are favourable to the development of the ova and the life of the embryos. The disease is found usually in animals pastured on low, marshy ground and in pastures containing stagnant pools. From these places the embryos are ingested by the sheep in the food and water. In the stomach and intestines the embryos develop into the mature, blood-sucking worms. The eggs are laid in the spring and summer by the females and then passed out with the fæces.

Several methods have been tried in an effort to control the disease. A change of pasture each season is desirable, and if it is possible to change two or three times during a season, the results will be still more satisfactory. The choice of pasture is an important factor. The best sheep pasture is a dry, hilly run with good clean running water. If it is possible, an infested flock should be split up into small groups, and their run changed every three or four weeks.

Another method is the so-called "Bare Lot Method," where the

sheep are kept on a lot absolutely free from all vegetation and fed in racks and watered in troughs, the embryos thus being starved out.

Infested sheep may be treated with gasoline, ℥ ii in milk for lambs as a drench, and repeated 3 or 4 times. For sheep ℥ ss in ℥ ii of light oil may be given. The principal drawback to this form of treatment is that it may cause congestion of the bowels. Rahe recommends picrate of potash, gr. ii to iii once a day in linseed gruel for three days. Kamala may be used in 4 or 5 gramme doses in water or milk.

In the Ambulatory Clinic we have used copper sulphate solution successfully. This is prepared by placing ℥ ii of copper sulphate in a gallon of water, making a solution of approximately 1.5 %. This is given in the following doses: ℥ mo. lambs, ℥ vi; 6 mo. lambs, ℥ xii; 12 mo. lambs, ℥ xviii; 18 mo. lambs, ℥ xxiv; etc. It is best given as a drench with a metal syringe, using a long nozzle. An attendant holds the sheep, preferably setting it on its haunches as in shearing. By this procedure the head is not held in an unnatural position and there is much less danger of the material going into the lungs. In our experience, holding the head up, with the sheep in the standing position, has resulted in a good deal of choking and coughing, which is not only dangerous to the animal but makes a bad impression on the owner. This form of treatment may be given at any time, but best before the sheep are turned to pasture. In order to get the best results from this treatment food should be withheld for 12 to 24 hours before it is administered. It is well to repeat in two to three weeks, followed by a laxative if desired.

We have used this form of treatment in three flocks and in each the disease has been checked with no more deaths.—***Cornell Veterinarian.***

GERMAN VETERINARY CASUALTIES TO END OF 1917.

THE total number of deaths through wounds, killed and war infections is 139; it comprises 43, or 31 per cent. of officers on active service, and 96, or 69 per cent. of those on leave. The number of wounded is about the same, being 138 (21 of these cases were due to accidents). The percentage in those on active service is 31 and in the rest 69. Fifty-eight per cent. of the wounded received their injuries in the first six months of the war, whilst in the year 1915 the most fatalities occurred. The number of missing is 2, and those taken prisoner 7 (5 of these are counted as wounded).—*Swiss Veterinary Journal.*

Correspondence.

REGISTERED VETERINARY SURGEONS.

LOCAL GOVERNMENT BOARD,
WHITEHALL, S.W.1.
August 21st, 1918.

SIR,—I am desired by Mr. Hayes Fisher to inform you that, having regard to the present military and civilian requirements, it has been decided that no registered veterinary surgeon shall be taken for military service except, if he is suitable, as a commissioned officer for employment in his professional capacity, subject to the condition that, if a veterinary surgeon is left in civilian employment, he is engaged on such veterinary work as is deemed to be most in the national interests.

In this respect the position of registe ed veterinary surgeons is similar to to that of registered medical practictioners and registered dentists, and it is important to secure the best distribution of their services. A Special Tribunal, known as the Veterinary Tribunal, has therefore been appointed for dealing with the cases of veterinary surgeons.

On and after the 28th instant any application, or request for leave to make an application, for the grant, renewal or review of a certificate of exemption to, or held by, a registered veterinary surgeon, on whatever ground, is to be made to the Veterinary Tribunal, of which the address is 10, Red Lion Square, London, W.C.1. and will be dealt with by them. And case which may be pending before a Local Tribunal or an Appeal Tribunal on that date should be referred to the Veterinary Tribunal, with all the accompanying papers.

The powers, functions and procedure of the Veterinary Tribunal in the cases dealt with by them will be the same as those of an Appeal Tribunal when dealing with applications made directly to them.

I am, Sir,
Your obedient Servant.
H. C. MONRO
(Secretary.)

To the Clerk or Secretary of the Tribunal.

SPECIAL TRIBUNAL.

REGISTERED VETERINARY SURGEONS.

IN pursuance of the provisions of regulation 54 of the Military Service Regulations, 1918, the Local Government Board and the Secretary for Scotland hereby appoint—

F. W. Garnett, Esq., C.B.E., M.R.C.V.S.,
G. A. Banham, Esq., F.R.C.V.S.,
Hugh Begg, Esq., F.R.C.V.S.,
C. Charnock Bradley, Esq., M.D., D.Sc., Ch.B., M.R.C.V.S.,
J. Clarkson, Esq., M.R.C.V.S.,
H. J. Dawes, Esq., F.R.C.V.S.,
Sir John M'Fadyean, LL.D., M.B., C.M., B.Sc., M.R.C.V.S.,
W. J. Mulvey, Esq., F.R.C.V.S.,
S. H. Slocock, Esq., F.R.C.V.S.,
J. Willett, Esq., M.R.C.V.S.,
P. Wilson, Esq., M.R.C.V.S.,
W. Woods, Esq., F.R.C.V.S.,

to be a Special Tribunal (hereinafter called the Veterinary Tribunal) for the purpose of dealing, on and after the twenty-eighth day of August, 1918, with any application, or request for leave to make an application, for the grant, renewal, variation or withdrawal of a certificate of exemption to, or held by, any man (not being a duly qualified medical practitioner) who is a qualified veterinary surgeon, registered under the Veterinary Surgeons Act, 1881. F. W. Garnett, Esq., C.B.E., M.R.C.V.S., is hereby appointed to be Chairman of the Veterinary Tribunal.

And the Local Government Board and the Secretary for Scotland direct that the powers, functions and procedure of the Veterinary Tribunal in relation to the matters aforesaid shall be the same as those of an Appeal Tribunal when dealing with applications, or requests for leave to make applications, made direct to them under the Military Service Regulations, 1918, as amended by subsequent Regulations.

Dated this twenty-first day of August, 1918.

W. Hayes Fisher,
President of the Local Government Board.

Robert Munro,
His Majesty's Secretary for Scotland.

RABIES.

A case of rabies in a dog at Plymouth has been confirmed by the Board of Agriculture and Fisheries. Several other cases that are suspicious have been reported and are now under investigation.

In view of these circumstances and the fact that it is known that in more than one instance persons have been bitten by suspected dogs, the Board have made an Order prohibiting the movement of dogs

out of the counties of Devon and Cornwall and requiring the control of dogs within a large area of those two counties.

The public are warned that any case in which symptoms suspicious of rabies are observed the police should at once be notified.

Board of Agriculture and Fisheries,
Whitehall Place, S.W.1.
9th September, 1918.

Personal.

DR. CLEMENT STEPHENSON, D.Sc., F.R.C.V.S., of Sandyford Villa, Newcastle-on-Tyne, has left estate of the value of £58,182, with net personalty £57,440. He gives £5,000 each to the Armstrong College, Newcastle, for building and equipping laboratories, and the Royal Veterinary College, Camden Town, for a scholarship.

F. W. FOREMAN AND G. S. GRAHAM-SMITH, writing in *The Journal of Hygiene* for October, 1917, consider that putrefying bacteria invade dead bodies from the surfaces rather than from the alimentary tract. Carcases of small animals lying on the ground in hot weather were preserved for long periods by the application of creosote oil to the skin and body openings. The stench from dead horses in the war zone was kept down by spraying them with undiluted oil, and brushing the oil into their coats with a stiff brush. Human bodies on "No Man's Land" that had lain exposed for days, weeks, and months, were mummified after one or more sprayings, and the stench completely destroyed. Horse carcases treated with ½ to 1 gallon externally keep well preserved for weeks. Creosote oil sprayed on the inside of mess halls, keeps them free from flies. A piece of cloth saturated with the oil, hung over the entrance to a mess hall, keeps it practically free from flies. G. M.

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Yours truly,.....M.R.C.V.S.

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Yours faithfully,.....M.R.C.V.S

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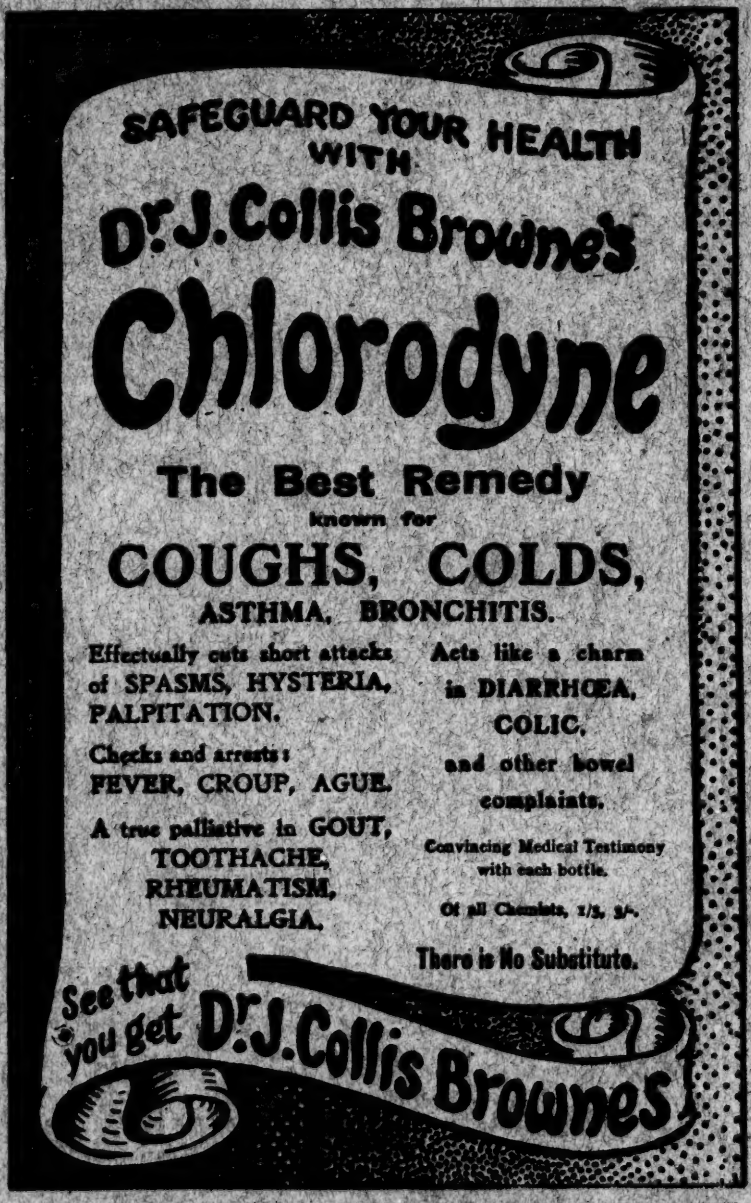
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